NOAA'S R&D HPCS ACQUISITION
SOLICITATION NUMBER DG1330-05-RP-1038
QUESTIONS AND ANSWERS
AMENDMENT 0009

Question 390. GFDL persistent archive clarification - Please provide a summary for clarification of the 5PB vs. 7PB of storage that may be part of the persistent HSM from GFDL.

Answer: At present there is 5 PB of storage at Princeton and that is the capacity that offerors should assume in submitting proposals. However, the Government does hope to increase Princeton storage to 7 PB via titanium drives or other devices at some point in the not-too-distant future, but likely not until after contract award. Offerors will be notified should plans to increase storage come to fruition prior to contract award. Also see 363, 267, 252, 112, and 87.

Question 391. Archived

Question 392. Given the statement in C.5.6.1 of Amendment 7 "In projecting the needed enhancements, the contractor can assume the following: 2500KW service to the GFDL Facility split between 2 1500 kva transformers, one in the main building and the other in the computer building" what is the Government's expected avail power for new HW available on 10/06 should modification occur?

Answer: The Government estimates that roughly 950 kVA of the 2500 kVA from the campus substation will be available for the HPC hardware based on observed demand at the substation for the current hardware configuration, estimated growth in power needed for cooling, and an assumed safety factor. Since this power requirement exceeds the GFE power availability of 650 kVA, the contractor is responsible to ensure that the power infrastructure between the campus substation and the Computer Room is able to support the additional load. As indicated in Amendment 7 and 8, the Government will work with the winning vendor, Princeton University and the electric utility to increase the electric service to the campus, once the expected power requirements are provided by the winning vendor. If the electric service to the PRTN complex approaches 3000 kVA, the contractor must increase the capacity of one or both of the 1500 kVA transformers.

Question 393. Please explain how the available power for new hardware provided in C.11.11 Table X11 of 650kva for 10/06 was arrived at.

Answer: The value of 650 kVA was a conservative estimate of what PRTN could comfortably support using current power infrastructure. This value was determined to be roughly 110% of the power consumption of the HPC equipment that is expected to be installed at PRTN by the end of the current contract. If the power required exceeds this, the contractor is responsible to assure that the power infrastructure between the substation and the Computer Room is able to support the additional load. The answer to question #392 addresses actions to be taken by the Government to correct limitations of electric service at the campus substation.

Question 394. Can the delivery of the HSM associated with workstreams 7-9 be deferred until year two of the contract? Since it is intended to be owned by the Government, it represents a large capital expenditure in year one and may limit delivered computational performance targeted towards those workstreams.

Answer: Yes, however the first year funding profile will have to be reduced by $80,000 to acquire media for the data to be saved on the current HSM.

Question 395. Please post the disk I/O worksheet mentioned by the Government.

Answer: This worksheet is posted as J.5 to the rdhpcs website. In addition a new I/O benchmark tar file is also posted (iobenchv2.tgz).

Question 396. Will the final design drawings and specifications for BLDR-2 be made available? How do we request these drawings?

Answer: A CD containing the final design drawings and specifications will be sent to each remaining vendor in the competitive range. This design is still in draft form, but any changes are expected to be minimal. Please read the hard copy documentation provided with the CD for information on expected changes.

Question 397. Suppose instances of the same or different workstreams share physical CPUs serially across time in the proposed configuration. How should the SLT be calculated for those instances?

Answer: As the general statement, SLT cannot be counted if a workstream instance cannot be run. Therefore, just as the throughput time for an instance blocked from starting due to physical use of the CPUs is started from the time of submission, the throughput time for an instance blocked from restarting is measured until the instance may be restarted. For example, suppose we consider a physical block of CPU resources supporting two workstream instances A and B (A and B may or may not be from the same workstream). According to the throughput definition, A and B must be submitted to the run queue at the same time. Suppose A starts. Thus B must wait for A to complete. Upon the completion of A, B starts. Therefore, the time for B is the queue wait time plus the run time for B because B could not run until A completed. Similarly, the throughput time for A is the time that A took to run plus the time B takes to run since A could not restart until B completes.

Question 398. Re: PTRN door opening height. What is the height of the doors (lowest point) between the loading dock and the computer room? If necessary can the door frames be removed to accommodate equipment delivery?

Answer: The door height is 85” except it is limited by two things: (1) Two electro-magnetic security door locking devices mounted on the underside of the doors between the loading dock storage area and the Computer Room. The distance from the floor to the underside of these two devices is 83.75”. These devices can be unfastened and moved up and out of the way, except, we understand, for the cables running to them, for which we understand that we need to add a ½”, so the distance from the floor to these cables will be 84.5”. (2) Door

closing hardware, which we understand to be easily removable. The government's only restriction with respect to the doors, frames, locking devices, and door closing hardware is that the winning vendor must return them to the condition they are in now or as otherwise agreed upon by the Government upon completion of each equipment delivery requiring door height modifications.

Question 399. Can the government please provide the baseline numbers for the new I/O benchmarks described in section J.5?

Answer: The Government has supplied the best available data to the public website under the Current best values for I/O baseline link. See related questions 425 and 402.

Question 400. Re: Power & Cooling What is the updated power demand for the PRTN complex? (2) What is the projected power demand for the HPC system by the end of the current contract, once all system upgrades have been completed? (3) How has this increased power load affected the Government's projection of available cooling, based on the observed capabilities of the current chilled water plant during the recent heat wave and projections for the cooling system's capabilities once the chilled water loop is installed prior to the summer of 2006?

Answer: (1): The following is a list of the power readings taken on 7/22/05:

225 kVA UPS = 140 kVA
500 kVA UPS = 376 kVA
PRTN Main Building Transformer 1/: 752 kW
PRTN Computer Building Transformer 2/: 749 kW
PRTN Complex Peak Power Demand: 1617 kVA / 1464 kW (both reached 7/19/05 @ 4:12 p.m.)
Rest of Campus Peak Power Demand: 869 kVA / 735 kW (both reached 7/18/05 @ 12:41 p.m.

Footnotes for building transformer readings:

1/ The Main Building transformer provides power to the Main Building occupants and serves all three chillers, as well as the pumps and cooling towers for Chillers #1 and 3.

2/ The Computer Building transformer provides power to all equipment in the Computer Building, which includes the pumps and cooling tower for Chiller #4 but does not include Chiller #4 itself.

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(2): The power required for the HPC system by the end of the current contract is projected to be 580 kVA, considering additional equipment that may still be added to the HPC configuration under the current contract.

(3): The observed performance of the PRTN chilled water plant on the worst day of the recent heat wave with high humidity has indicated that the Government should de-rate the cooling capacity at the PRTN complex of the chilled water plant by 10% of the nominal 575-ton capacity (using the 350-ton chiller #3 and the 225-ton chiller #4 and assuming N+1 redundancy). (The Government believes this to represent a conservative estimate of cooling

capacity.) Accordingly, the GFE cooling for PRTN has been reduced by 57 tons for each of the entries in the table in Section C.11.11 in Amendment 8. However, this change does not reflect the Government's intention to replace the 225-ton Chiller #4, which is 26 years old, with a new 250-ton chiller by the spring of 2006. With this installation, the total cooling capacity for the PRTN complex in October 2006 will then have a rated capacity of 600 tons. Therefore, with the additional 25 tons for the new chiller, de-rated by 10%, the Government will increase the GFE cooling capacity for the PRTN R&D HPCS from 250 to 270 tons for October 2006. Any contractor requiring additional cooling above these estimates will be responsible for any enhancements to the chilled water plant to produce the cooling capabilities that the vendor requires. Any enhancements that the contractor makes shall not compromise PRTN's N+1 configuration requirement. The chilled water loop project is expected to improve overall plant efficiency through improved plumbing design and controls. This will be in addition to its primary objective, which is to permit any two chillers to be run at one time. Also, PRTN currently has seven GFE 35 ton computer room air conditioners (CRACs), for a non-redundant capacity of 245 tons. If the winning contractor requires additional air handling capabilities, it will need to provide additional CRAC units or install an X-treme Density cooling system (XDOs and XDPs) for the PRTN Computer Room. The Government desires that the computer room air conditioning configuration at PRTN have N+1 backup capability.

Question 401. ARCHIVED

Question 402. RE: Performance of Baseline Storage system at PRTN. In section C.10.3, specifications are given for the storage and archiving at Princeton. Specifications are given on the capacity and the fibre channel connections, but does not provide specifics on the types of storage arrays, their configurations, and measure of the current performance. Could the government please provide detailed specifications on the hardware used for the FSFS and LTFS including product names, configurations, types of connections to the LSC and PPAC, filesystems used on those components, and other information so that we can determine the performance of the baseline storage system?

Answer: As part of its current architecture, Princeton does not have a long-term scratch.

Fast-scratch bandwidth and capacity for post-processing and analysis is much more important than for the LSC.

Over all Analysis hosts -

HSMS
/archive is 16 x 2 Gb channels, 16 TB

Fast Scratch
/vftmp is 96 x 1 Gb channels, 8 TB
/vftmp2 is 8 x 2 Gb channels, 5 TB

All disks on 2 Gb channels have a native transfer rate of 50 MB/sec or greater, with RAID-5 parallelism over 5 disks.

The disk arrays are SGI TP9100s (1-Gb and 2-Gb generations) and TP9300s, running RAID-5 5+P.

For the performance characteristics:

HPCS disk inventory

ic1-3 were delivered with new scratch disk in 5/2004. All other disk was delivered with the Origins.

All Origin 3000 disk has remained at GFDL and has been moved to new Altix hosts, or is now unused. The "old SAN" disk and 1 Gb switches from 2001-2003 were left in place, and are still under maintenance.

new SAN - 64 LUNs, 73 GB disks, 365 GB/2 Gb channel, 5+P+HS
8 x 32-port 2 Gb switches, each with:
16 disk ports + 16 host ports (assures max 1 hop inside switch)
8 disk ports used
8 host ports used for ic1-8 (1 per host)
2 host ports used for anc1-2 (1 per host)
4 host ports used for ac1-2 (2 per host)
8 disk ports free per switch (64 total)
2 host ports free per switch (16 total)

/arch1 is 8.0 TB
/arch2 is 8.0 TB
/home1-8 is 2.4 TB total
/vftmp3 is 1.7 TB
DMF-sys is 1.0 TB
/opt, etc. is .3 TB

8 x 2 Gb channels to new SAN from each ancN/icN host
16 x 2 Gb channels to new SAN from each acN host

ancN /vftmp - 48 LUNs per host, 18 GB disks, 90 GB/1 Gb channel
anc1 /vftmp is 4.0 TB (128 GB is swap)
anc2 /vftmp is 4.0 TB (256 GB is swap)

new Altix /vftmp - 8 LUNs per host, 73 GB disks, 365 GB/2 Gb channel
ic1 /vftmp is 2.0 TB
ic2 /vftmp is 1.4 TB
ic3 /vftmp is 1.4 TB

old O3900 /vftmp - 8 LUNs per host, 73 GB disks, 365 GB/2 Gb channel
ic7 /vftmp is 2.8 TB
ic8 /vftmp is 2.8 TB

old O3800 /vftmp - 8 LUNs per host, 18 GB disks, 90 GB/1 Gb channel

ac1 DMF-tmp is .7 TB
ac2 DMF-tmp is .7 TB
ic6 /vftmp is 1.4 TB
UNUSED is 2.8 TB

old SAN - 32 LUNs, 36 GB disks, 144 GB/1 Gb channel, now 4+P+HS
8 x 16-port 1 Gb switches, each with:
4 disk ports
2 ac1 ports
2 ac2 ports
1 ic4 port
1 ic5 port
6 free ports

ic4 /vftmp is 1.1 TB on 8 LUNs
ic5 /vftmp is 1.1 TB on 8 LUNs
UNUSED is 2.2 TB

Question 403. ARCHIVED

Question 404. The Facility Proposal now includes a requirement for hardcopies to be bound. Please clarify whether placement in a three-ring binder meets the requirement, and alternately what type of binding is required.

Answer: The Government will allow hardcopies of Facility Proposals to be submitted in a three-ring binder.

Question 405. RE: Section L.8. The item added to the list as 9) at the end of the fourth paragraph in Amendment 8, requires a list of facility alterations. If the contractor chooses to utilize BLDR-1/BLDR-2, is the Government's intention for the contractor required to provide this list to the Government in the Facility Proposal? Or is the Government's intention for the contractor to provide the list prior to submission so that the GSA estimate can be included in the Price Proposal? What is the expected lead time for receipt of the GSA response?

Answer: It is the Government's intention to have the contractor proceed with their own proposed facility alteration estimate, and to submit those figures as part of their revised proposal. The Government will then utilize the offerors list of facility alterations to develop the GSA estimate which will be provided to the offeror for inclusion in their BAFO. Note- Depending upon the magnitude of the alterations, a formal engineering study or building impact study may be required. It is the Government's intent to notify the offeror if a study is required, but the study would not be performed until post-award and would be funded by the vendor.

Question 406. The Government's requirement for descriptions of projection methodology, including tables with performance metrics, is necessary to understand the proposed methodology, but will require a significant number of pages in the already limited page count

allowed for the technical proposal. Will the Government waive the page limit, or allow for additional pages, for this particular section (Section J, Tab 2)?

Answer: The details of the performance projection metrics, methodology, etc. may be part of an Appendix which includes a hard copy of the data to be returned with the Benchmark .xls spreadsheet as well as the explicit SLT calculation and performance X-factors (Amendment 6). The associated pages do not count against the RFP Section C response page count limit. With respect to benchmarking, the Government requires the Section C response to contain a brief summary of the benchmark test configuration, differences between the test and proposed configurations, proposed SLTs by configuration install period, total proposed SLT and single instance performance X-factors. Tabular formats are compact and generally well suited for much of the required summary information. It is worth noting that the Section J instructions describe the desired "detailed" documentation and reporting as "complete" and "concise". It is also worth noting that the Government requires benchmark spreadsheet data to be provided in both hardcopy and .xls formats.

Question 407. Re: FSL Archive Benchmark. In response to RFP Question #394, the Government stated that acquisition of the HSMS for Workstreams 7 - 9 could be delayed until the second year of the contract. Will the Government also defer the archive benchmark requirement for Workstreams 7 - 9 until the second year of the contract? The AML/J has a maximum exchange rate of 175 exchanges per hour. The archive benchmark for Workstreams 7 - 9 requires 190 exchanges in 40 minutes or less, or a rate of 285 exchanges per hour. The AML/J will not satisfy this benchmark requirement; if the AML/J is to be used during the first year of the contract, the contractor needs relief from the archive benchmark requirement for these workstreams until the second year.

Answer: Yes. The Government will defer the archive benchmark requirement for Workstreams 7 - 9 until the second year of the contract.

Question 408. ARCHIVED

Question 409. At the LTD, the Government indicated that new guidance would be provided concerning the amount of tape compression an offeror could assume when dealing with workstream archive data written to tape. This information is not included in Amendment 8, nor is it in the Government's Q&A responses on the RDHPCS website. We request that the Government provide this guidance in an effort to ensure a level playing field for all offerors.

Answer: The Government has attempted to provide data amounts in the RFP in an "uncompressed" format.

However, with no guarantee of future compressability, the following are the current compression rates found at FSL, NCEP, and GFDL:

FSL: Much of FSL's data is stored in GRIB, or zipped tar files. After looking at additional compression currently achieved in hardware, FSL has seen compression rates of about 10% or 1.1 times native format.

NCEP: Compression of at least 10% (1.1 times native) has been achieved.

GFDL: About 1.2, which takes into account both the ~1.5 initial ratio and the typical amount of deleted space on a tape.

Question 410. In response to RFS Q&A #400 it has been indicated that "The Government estimates that roughly 950 kVA of the 2500 kVA from the campus substation will be available for the HPC hardware based on observed demand at the substation for the current hardware configuration, estimated growth in power needed for cooling, and an assumed safety factor. Since this power requirement exceeds the GFE power availability of 650 kVA, the contractor is responsible to ensure that the power infrastructure between the campus substation and the Computer Room is able to support the additional load". In addition the response to Q&A #393 indicates that the 650kva was calculated as follows: "This value was determined to be roughly 110% of the power consumption of the HPC equipment that is expected to be installed at PRTN by the end of the current contract". Based on the information provided in C.11.3.1 a 1750kva silicon filled transformer exists in the computer building"s substation, however, this transformer has been derated by the University to 1500kva. Using the information provided in response #392 it is assumed that the current conditioned power load (as measured from the UPS) represents the power load of the currently installed computer system (516kva). The total power load for the computer building substation was 749kw (approx 902kva) indicating that the power draw from the non-compute equipment powered from this substation (cooling tower/pumps for chiller #4, ac units, building recepticles, desktops, lighting, etc.) is approximately 386kva. Question #1 - Given the transformer"s derated capacity of 1500kva and the existing computer building non-compute load of 386kva why does the government believe that 650kva represents a valid power limit for the proposed HPC environment? 2 - What elements of the electrical infrastructure are limiting the load from the estimated 950kva to 650kva? 3 - How was the assessment of the robustness of the electrical environment conducted?

Answer: The Government now believes that the best estimate of the current power availability for HPCS at the PRTN Computer Building is approximately 900 kVA, rather than the 650 kVA reported earlier. The rationale for this value is as follows:

A 1500 kVA transformer powers the PRTN Computer Building and associated equipment. This transformer has a fan-assist that boosts the nameplate rating to 1725 kVA. However, the Government has been advised that it is not good practice to operate the Computer Building transformer continuously at nameplate ratings. Load peaks can exceed demand readings for short periods of time and if no margin exists, overcurrent trips may result. Therefore, the Government has adopted a power limit of 1500 kVA for the Computer Building transformer. The Government considers the infrastructure between the campus substation and this transformer capable of handling the full 1500kVA load.

The currently installed HPC equipment at PRTN had a peak power demand of 516 kVA as read at the two UPSs (the 225 kVA and 500 kVA units at PRTN). The measured peak power demand on the Computer Building transformer is 749 kW, or 832 kVA using a power factor of 0.9 recorded for the two-building complex at the campus substation (see answer to Question #400). Then the non-supercomputing load currently being supported by the PRTN Computer Building transformer is at most 316 kVA (832 kVA – 516 kVA).

As indicated in the response to Question #400, the government intends to replace existing Chiller #4 with a 250 ton chiller. The Government has reserved 290 kVA of power for its operation based on product literature.

Then an estimate for the amount of power available for an HPC installation at PRTN is: 1500 kVA (max capacity) - 316 kVA (current non-computing load) - 290 kVA (new Chiller #4) = 900 kVA

If the contractor requires additional power, the contractor will be responsible for all required upgrades to the power infrastructure. Note that additional chilled water capacity, and the associated power load, required for cooling at PRTN shall also be the responsibility of the contractor.

The robustness of the PRTN electrical environment was determined by meetings between the Government and representatives of the Electrical Engineering Division of Princeton University's Facilities Department. This is the same office that managed the installation of the electrical infrastructure at GFDL.

Question 411. Re: NASA Goddard GFE Cooling. Page 38 of Amendment 8 says the following: "NASA will make available up to 260 tons of cooling and 920 KVA of power to the computer room." Page 86 of Amendment 8 says the following: "Six 33 ton Liebert air handlers will be provided as site-restricted GFE equipment." This totals 198 tons. Which is correct, 260 or 198?

Answer: The available Greenbelt cooling capacity is limited to the 260 tons of cooling capacity provided by the chilled water. The nominal rating for the six air handlers is 6x33 or 198 tons, which means that these air handlers are capable of providing up to 198 of these available 260 tons. If the vendor's equipment requires more than 198 tons of cooling, but less than 260 tons, it will need to purchase more air handlers to take advantage of the total cooling available. Note that the vendor may need to acquire additional air handlers to correct other problems, such as hot spots or air flow issues, even though the cooling requirements for the installed equipment do not exceed 198 tons.

Question 412. As a result of LTD discussions it appears that there is a discontinuity between the individual sites with respect to how many archival tape copies are maintained. Please clarify requirements for maintaining one/two tape copies of archival data for the respective sites.

Answer: Offerers should determine a methodology that adequately meets the data retention requirements and availability.

At NCEP and FSL this availability requirement is currently achieved through redundant tapes.

At Princeton: there is only one tape copy of each file.

This approach places more emphasis on tape recovery.

When DMF is upgraded to version 3.0, certain "important" files will be tagged in order to have 2 copies. Quotas will cap usage to amount required in the RFP.

Question 413. Re: FSL GFE. As a result of LTD discussions, please confirm whether the existing 50TB of DDN disk located at FSL will be identified as available GFE.

Answer: Yes, the DDN RAID is offered as GFE. It will be available as GFE in Year 2. Currently, the DDN RAID should be considered as site-constrained, the Government may upon further consideration make the DDN RAID as unconstrained GFE. It will be kept under maintenance with the remainder of current contract for the first year of this contract and is being used as long-term scratch. Twenty-five per cent of this data will need to be preserved for use by the user community. This may be done by preserving it on the existing RAID, or moving it to other disk or tape storage. The RFP will be modified to reflect this change.

Question 414. PROPRIETARY

Question 415. Re: Key Personnel Resumes. Section L.6.1.1, Tab 9.1 Project Management; it is assumed that the Key Personnel Resumes do not count toward the page limitation for the technical proposal. Is this a correct assumption?

Answer: That is correct. Resumes are not included in the page count for the technical proposal.

Question 416. Re: NCEP HPSS archive. As a result of LTD discussions, it is unclear how much data will need to be migrated from the HPSS archive located at NCEP. The RFP seems to imply that 2.5PB of data will need to be migrated. Please confirm.

Answer: Confirmed. The requirement is to retain all the data currently contained in the NCEP silos, about 2.5PB.

Question 417. Re: Option upgrade benchmark change and min performance guarantees. With Amendment 8, Section L.10.1 requires the Contractor to propose guaranteed performance minimums at the option period upgrade. At the same time, Section C.4.2 requires an updated benchmark definition at the option upgrade. How does the Government reconcile these contradictory requirements (i.e. how can the Contractor guarantee performance of something which has not yet been defined)?

Answer: The Government will amend the RFP such that benchmark revisions at system upgrades will be by mutual agreement between the Government and Contractor. Thus, the guaranteed performance minimum at option period upgrade is with respect to the then current benchmark (i.e. the initial installation benchmark or the benchmark agreed to at base period mid-life upgrade).

Question 418. Re: Benchmark optimization and proposed performance. The current statement concerning benchmark optimization at mid-life and option upgrades in C.4.2 may be interpreted as including all optimization work in the performance baseline. In the case of

benchmark revision, will the Government allow optimzation to count as part of the proposed performance upgrade and SLT?

Answer: The Government will amend the RFP to make it clear that optimizations, if found acceptable to the Government, will be allowed to count as part of the proposed performance upgrade and SLT.

Question 419. Re: Construction Process in Boulder. What is the process, cost and engineering implications related to performing alterations in the GSA managed David Skaggs Research Center for BLDR-1 and BLDR-2?

Answer: A. The current process for contracting facilities work in the David Skaggs Research Center (DSRC)is described below. It is unclear at this time if all facility renovation/modifications at the David Skaggs Research Center (DSRC) must be conducted through the General Services Administration (GSA) Contracting Office. Because the Skaggs Building is managed/maintained by GSA, past practice is that all facility work must also be conducted through GSA. NOAA is exploring the possibility of permitting the R&D HPCS Contractor to contract directly for all necessary facility renovations at the Skaggs Building (BLDR-1 and BLDR-2). NOAA is not certain if GSA will agree to this procedure, or when a response from GSA will be received. The current process is:
1. Construction activities that impact the facility's mechanical and electrical systems with respect to NOAA computer spaces are facilitated by the GSA on behalf of the tenant.
2.Funding for construction must come from the agency requesting the work.
3.All federal contracting is subject to Federal Acquisition Regulations.
4.Process: (NOTE: All times are estimates and actual times to have a contractor in place may be substantially longer.)
a.Vendor to provide detailed specification for alterations desired to NOAA.
b.NOAA will request an order of magnitude cost estimate for the work with all applicable charges. (1 Week)
c.Cost estimate provided to NOAA. (1 Week – Depending on Scope)
d.If accepted, NOAA will fund via a Reimbursable Work Authorization (RWA). (1 Week)
e.GSA will provide a contracting officer (CO) to solicit for the design and the construction. (2-3 Weeks) Note: If GSA has an existing construction contract awarded, the CO may issue a Request for Quotation to the contractor and obtain pricing fairly quickly. A modification to an existing contract is a fairly quick process. This simplified process deals with minor electrical distribution changes only.
f.Depending on the alteration, GSA may solicit one of the A/E firms with which it has IDIQ contracts.
g.Or GSA may solicit an 8(a) General contractor to expedite the process. (1 Week)
h.Pricing (3-4 Weeks)
i.Negotiation and Award (2 Weeks)
j.Construction
5.Summary: The federal contracting process requires time and has costs that may be significantly greater than those in private industry.
B.Cost
1.The total cost for the project is not solely limited to the cost of the work and may include the following.
a.Impact Studies

b.Engineering Design
c.Engineer Cost estimates
d.GSA project management hours
e.GSA national overhead
f.GSA regional overhead
g.Management and Inspection costs for A/E
2.Expedited procurement requires the use of an 8(a) contractor which typically results in pricing 10% above the Means Cost Estimate.
3.Costs associated with security and work within an existing building such as the DSRC can add 5%.
4.Costs for work in future years are unknown. An estimated rate of inflation may be added but there are no guarantees of pricing in out years.
C.Engineering
1.Major facility changes will require a full design and impact study prior to development.
2.Costs for engineering are the responsibility of the vendor requesting the work.
3.Submittal review costs and inspections by the design engineer are the responsibility of the vendor requesting the work.

Question 420. Re: SLT Calculation for WS5. Amendment 8 provides an SLT definition which is the sum across all instances for a given workstream. But WS5 does not have a fixed number of instances. On the other hand, some instances of WS5 may produce longer simulation lengths than others. How does one calculate the SLT for WS5?

Answer: Each instance of WS5 represents some portion of the 33048 forecast hour baseline. Thus, the SLT component for each instance of WS5 in the proposed configuration is weighted by the ratio of the instance simulation length to the 33048 hour baseline.

For example, suppose there are 4 instances of WS5; 2 instances producing 5508 forecast hours and 2 instances producing 11016 forecast hours in the space of 1.5 wallclock hours. The 5508 forecast hours represent 1/6 while 11016 forecast hours represent 1/3 of the baseline forecast hours, respectively. If the throughput wallclock time required to produce these results is 1.5 hours, the resulting SLT over 1 calendar year, with an availability of 96 percent, is:

((2 instances) * (1/6) * ((365*86400)/(1.5*3600))
+(2 instances) * (1/3) * ((365*86400)/(1.5*3600)))*.96
= 5606.4

Question 421. In response to Site Q&A #400 it was stated that: "With this installation, the total cooling capacity for the PRTN complex in October 2006 will then have a rated capacity of 600 tons. Therefore, with the additional 25 tons for the new chiller, de-rated by 10%, the Government will increase the GFE cooling capacity for the PRTN R&D HPCS from 250 to 270 tons for October 2006". However, the Available Cooling for New Hardware identified in Amendment 8 C.11.11 Table XII is 164 tons. Please explain the difference in the two statements.

Answer: The number "164" for the GFE cooling for October 2006 for PRTN is an error! It should have read "250" to reflect the revised numbers as of 7/22/05 in which the cooling for all three dates was reduced by 57 tons. (The total for October 2006 should have been "706".)

As stated in response to question #400, the October 2006 cooling is increased to 270 tons (The total for all sites is 726 tons).

Question 422. Regarding the revised proposal, is the offeror required to resubmit all proposal volumes, or only those volumes requested in the July 22, 2005 letter?

Answer: Each instance of WS5 represents some portion of the 33048 forecast hour baseline. Thus, the SLT component for each instance of WS5 in the proposed configuration is weighted by the ratio of the instance simulation length to the 33048 hour baseline.

For example, suppose there are 4 instances of WS5; 2 instances producing 5508 forecast hours and 2 instances producing 11016 forecast hours in the space of 1.5 wallclock hours. The 5508 forecast hours represent 1/6 while 11016 forecast hours represent 1/3 of the baseline forecast hours, respectively. If the throughput wallclock time required to produce these results is 1.5 hours, the resulting SLT over 1 calendar year, with an availability of 96 percent, is:

((2 instances) * (1/6) * ((365*86400)/(1.5*3600))
+(2 instances) * (1/3) * ((365*86400)/(1.5*3600)))*.96
= 5606.4

Question 423. RFP Section C.11.1.7 states that the GRBLT ceiling height is currently 9' above floor. The RFP goes on to state the ceiling height reduces to 8'6" if a 24" floor is installed. Section C.11.1.8 states maximum height of racks is 84", but states "special accommodations may be possible". Please clarify whether or not the GRBLT facility will require additional modifications by the RDHPCS contractor in order to accommodate equipment that is 92.5" tall. If further modifications are required by the RDHPCS contractor, can the Government estimate the cost of altering an area 10' x 30' to accommodate equipment that is 92.5" tall? Are there alternative areas at Goddard that will accomodate equipment that is 92.5" tall and not require additional modifications by the RDHPCS contractor?

Answer: Yes, the GRBLT facility will require modification by the winning vendor to accommodate the installation in the computer room of equipment that is 92.5" tall. The equipment must be installed in the offered computer room, since there are NO alternate locations at Goddard that are available for such equipment.

The option of raising the ceiling above the equipment is not permitted because of the presence of obstacles above the current ceiling. Therefore, the following is recommended by FMD as the way to install the equipment, which is assumed in the estimate below to require a 10' by 30' or 300-square-foot area.

The equipment would be installed on the concrete floor with the raised floor tiles and supports removed from the designated area. The concrete floor would need to be sealed and painted. A barrier would be installed around the area to prevent air flow from the

surrounding raised floor regions. A railing would be installed on the raised floor surrounding the area, and steps would be installed for access. FMD estimates the cost to the vendor, with multipliers to reach the fully-loaded estimate, to be $75K for this construction. If the required area is larger than 300 sq. ft., the cost would presumably increase in proportion to the area required.

If the access to the area requires installation of a ramp, rather than steps, in order to comply with the Americans with Disabilities Act, then the area required would be increased to accommodate the required ramp with designated slope. A rough estimate of the cost for the ramp is an additional $18K fully loaded.

The above costs are the Government's best effort to estimate the construction costs for these modifications for the stated area. The vendor will be responsible for the actual costs for these modifications, which will be based on the area required, its location within the room, and any other elements required, such as the possible need for the ramp. As discussed in Section C.6.5.1, after contract award, the winning vendor will have some latitude in coordinating the plans for this construction with the Government's Phase I site preparations.

Question 424. Will any of the government personnel be available to carry beepers and respond to after-hours calls as part of the on-call team?

Answer: Yes, one government person will be available as part of a rotating on-call team, if requested by the vendor. He may be on-call up to 1 week in every 6 weeks. The skill level of this individual is expected to vary over the course of the contract from junior systems administrator through journeyman or senior systems administrator, depending on personnel turnover. This person is located in Boulder, CO. He is available to provide local support, or as part of an integrated 1-NOAA response team. The Government will maintain responsibility for supervising, assigning work, and ultimate technical direction for this individual. If the vendor chooses this approach, the Government will withhold the "pager premium" of $35,000/year from the contract.

Question 425. The "benchmark" implied by the I/O spreadsheet released with Amendment 8 does not seem well defined. Can the Government clarify the requirements for the I/O benchmark?

Answer: The Government agrees that the I/O benchmark lacks sufficient definition. Given the timeline required for the RFP, the Government will remove the requirement for the Contractor to provide data in the I/O Benchmarks section of the I/O spreadsheet (i.e. the Measured or Projected Data Rates section). The Government still desires any data the Offeror can provide.

Offerors must still complete the I/O spreadsheet section titled Theoretical Data Rates.

Further a forthcoming amendment to Section L will require the Offeror's response to describe how the details of the proposed I/O subsystem architecture(s) (i.e. numbers and types of hardware and software, etc.) will provide the Theoretical Data Rates stated in the I/O spreadsheet for each of the filesystems offered.

Offerors should be aware that the I/O usage represented by multiple instances of the lmdd and python build tests is indicative of current and expected user characteristics. The suite of I/O tests provided with Amendment 8 will be run during post-award LTD to help assess filesystem performance.

Question 426. What changes to the RFP are contemplated for the system descriptions in Section L, Tab 2 through Tab 3.1?

Answer: The following paragraph in Sec. L Tab 2 will be deleted by the next amendment:

"Describe the type, guaranteed minimum core counts, memory configurations and purpose of the processors to be delivered at each update of the HPCS configuration. Prior to the delivery of the initial or any subsequent installations or upgrades, the Government reserves the right to negotiate the configuration that will be actually installed."

The Government will clarify Sec. L Tab 3 by adding the following language:

"For the initial delivery, the Government expects this description to closely parallel the delivered system. For the upgrade, the Government requires a similar, but less detailed description." (The "description" referenced above refers to the system description for the base period)

Sec. L Tab 3.1 will be modified to add the following:

"For each upgrade, identify the sources of the expected increase in performance. For each upgrade, show how the proposed performance level was calculated. Provide a plan for how the vendor will meet the SLT guarantees should the system fail to meet the proposed performance."

NOTE: For the revised proposal, due shortly, vendors may propose to the existing language of Amendment 8, or may propose to Amendment 8 as modified by the above changes. All subsequent proposals must conform to the above changes.

Question 427. 1) What are the configurations of the HPSS servers supporting NCEP's current HSMS capabilities at Fairmont and Gaithersburg?

2) NCEP's HPSS servers are not listed as GFE. What is their expected disposition as of the beginning of GFY2007?

Answer: 1.The hardware configuration for the HPSS servers in Gaithersburg is as follows:

Two (2) IBM 7026 6M1 (4 processors, 4 GB RAM) CoreServers in a HACMP configuration;
Four (4) IBM 7026 6H1 (2 processors, 2 GB RAM) used as Data Movers.

The Fairmont system is being reconfigured and no HPSS-specific hardware is in place.

2. This equipment is owned by IBM and is not GFE. Contact IBM for further information.

Question 428. Will a 600-amp breaker be made available at PRTN in October 2006 in addition to the breakers that are currently providing power to the 500-kVA and 225-kVA UPSs?

Answer: Yes.

Question 429. Re: ability to use T10K drives in Princeton - In order to use T10K drives in the 9310 silos upgrades are required. How many of the silos in Princeton have been upgraded to support the T10K drives?

Answer: By December 2005, the necessary upgrades will have been performed on all five silos in Princeton in order to support the T10K transports.

Question 430. The RFP states that this procurement shall result in a new NOAA System with a distinct accreditation boundary; yet requirements have also been emphasized for high-performance interaction with existing HPCS infrastructure and user communities at each current processing site. Can NOAA please provide more guidance on how the vendor is expected to meet performance and user experience requirements across system accreditation boundaries? For instance, are firewalls required between the delivered system and any site-local networks? Must we treat all users as remote to the system?

Answer: It is reasonable to expect that performance and user experience demands could best be met in some cases by leveraging trust relationships with one or more existing NOAA Systems. System perimeter protection controls such as firewalls may be bypassed in cases where performance needs can be met safely using other security controls. Doing so requires close coordination with Owners and Security Officers of the other Systems; and must be documented as part of the System Security Plan per NIST SP800-43, "Security Guide for Interconnecting Information Technology Systems" (http://csrc.nist.gov/publications/nistpubs/800-47/sp800-47.pdf). Trust relationships effectively extend the scope of vulnerability beyond one System's realm of control, and as such should be chosen judiciously and monitored closely. Special access to the R&D HPCS, beyond that given to remote users in DOC policy, will require additional security controls in order to mitigate the increased risk. Vendors are strongly encouraged to review the June 30, 2005 update to DOC's "IT Security Program Policy and Minimum Implementations Standards" (at this page: http://www.osec.doc.gov/cio/ITSIT/DOC_IT_SEC_pgm.htm) document for additional guidance and required security controls.

Question 431. What is the disposition (availability for continued use) of the two current LSC systems (Xeon and EM64T) at FSL at the beginning of the contract and 10/1/06?

Answer: ANSWER TO FOLLOW.

Question 432. If the delivery of the HSMS at FSL is deferred until the second year of the contract, as suggested in question 394, is the data generated in the first year considered to be legacy data? If so, how much of that data will be retained as legacy? This affects the amount of data retained in later years.

Answer: ANSWER TO FOLLOW.

Question 433. The RFP states that all new data must be archived to tape within 24 hours. The retention profile at FSL indicates that most data will not be retained longer than 3 days. Is it a requirement that all data at FSL be saved to tape within 24 hours, or is it sufficient to save the 8% of data that will be retained for 3 years within 3 days?

Answer: The data that will not be retained for longer than 3 days is transient data. It is not necessary to move transient data to tape provided sufficient disk is supplied.

Question 434. What is the multi-factor authentication is being used for remote access at Princeton and Boulder?

Answer: ANSWER TO FOLLOW.

Question 435. What are the existing help desks at NCEP, FSL, and GFDL? Can offerers make use of them?

Answer: ANSWER TO FOLLOW.